

## **FINAL ASSIGNMENT REPORT**

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# Chapter 1. BUGZILLA TOOL

## 1.1 Introduction

Bugzilla is an open-source bug tracking system developed by the Mozilla Foundation. It is widely used by software development teams to manage and track software defects efficiently. Bug tracking is a crucial aspect of the software development lifecycle, ensuring that defects are identified, documented, prioritized, and resolved effectively. With Bugzilla, teams can streamline their debugging processes, improve collaboration, and maintain a high standard of software quality.

In today's rapidly evolving software industry, where frequent updates and agile development methodologies are prevalent, a reliable bug tracking system is essential. Bugzilla provides a structured way to report and manage software bugs, track changes, and ensure that all reported issues are addressed systematically. The tool is extensively used in open-source projects and enterprise software development due to its robustness, flexibility, and cost-effectiveness.

## 1.2 Overview

Bugzilla is designed to enhance bug tracking efficiency by providing features that facilitate detailed bug reporting, task assignment, workflow management, and collaboration. It supports multiple users and integrates seamlessly with version control systems, making it an ideal choice for software development teams of all sizes.

### Key Benefits of Bugzilla:

**Open-source and Free:** Bugzilla is completely free to use, reducing software costs.

**Highly Customizable:** Users can modify workflows, fields, and permissions according to project needs.

**Integration Capabilities:** Works with version control systems like Git, SVN, and CI/CD tools such as Jenkins.

**Multi-Platform Support:** Runs on Windows, Linux, and macOS, making it accessible to a wide range of developers.

**Scalability:** Suitable for both small development teams and large enterprise-level projects.

## **1.3 Key Features**

### **1.3.1 Bug Tracking and Reporting**

Bugzilla provides an efficient way to track software defects through structured bug reports. Users can report issues, categorize them based on priority and severity, and assign them to the responsible team members.

### **1.3.2 Workflow Management**

Bugzilla enables teams to define custom workflows, ensuring that each bug follows a predefined process from detection to resolution.

### **1.3.3 Multi-User Collaboration**

Multiple users can access Bugzilla simultaneously, report bugs, add comments, and update bug statuses.

### **1.3.4 Email Notifications**

Automated email notifications inform stakeholders about bug status updates, new assignments, and resolution progress.

### **1.3.5 Advanced Search and Filtering**

Bugzilla offers powerful search filters to quickly locate specific bug reports based on criteria such as severity, priority, and assigned developer.

### **1.3.6 Integration Support**

Bugzilla integrates with version control systems (Git, SVN) and CI/CD tools, enhancing workflow automation.

### **1.3.7 Custom Fields and Workflow**

Organizations can customize Bugzilla fields, workflows, and permissions according to their project requirements.

### **1.3.8 Time Tracking**

Bugzilla allows users to log the time spent on bug resolution, which is useful for project management.

### **1.3.9 Dependency Tracking**

Users can set dependencies between bugs to ensure that prerequisite issues are resolved first.

## **1.4 Advantages and Disadvantages**

### **Advantages:**

Free and open-source, reducing software costs.

Highly customizable, allowing users to modify workflows and settings.

Supports multiple platforms and databases.

Provides advanced search and filtering capabilities.

Seamless integration with development tools.

### **Disadvantages:**

Outdated user interface compared to modern alternatives like Jira.

Complex installation and configuration process.

No mobile application, limiting accessibility.

Limited Agile methodology support.

Can experience performance issues with large datasets.

## 1.5 Installation Guide

### 1.5.1 System Requirements

Before installing Bugzilla, ensure that your system meets the following requirements:

**Operating System:** Linux (Ubuntu, CentOS, Debian) or Windows.

**Web Server:** Apache or Nginx.

**Database:** MySQL, PostgreSQL, or SQLite.

**Perl Modules:** Bugzilla is built using Perl and requires specific Perl modules.

**Other Dependencies:** Git (optional), Sendmail/Postfix (for email notifications).

### 1.5.2 Installing Bugzilla on Linux (Ubuntu)

#### Step 1: Update System Packages

```
sudo apt update && sudo apt upgrade -y
```

#### Step 2: Install Apache Web Server

```
sudo apt install apache2 -y
```

#### Step 3: Install MySQL Database

```
sudo apt install mysql-server -y
```

Create a database for Bugzilla:

```
mysql -u root -p
```

```
CREATE DATABASE bugzilla;
```

```
GRANT ALL PRIVILEGES ON bugzilla.* TO 'bugzilla'@'localhost' IDENTIFIED
BY 'password';
FLUSH PRIVILEGES;
EXIT;
```

#### **Step 4: Install Perl and Required Modules**

```
sudo apt install perl libapache2-mod-perl2 -y
sudo apt install libdatetime-perl libtemplate-perl libmime-tools-perl -y
```

#### **Step 5: Download and Configure Bugzilla**

```
cd /var/www/html/
sudo git clone --depth 1 https://github.com/bugzilla/bugzilla.git
cd bugzilla
```

#### **Step 6: Configure Bugzilla**

Run the following command to check for missing Perl modules:

```
sudo ./checksetup.pl
```

Install any missing dependencies:

```
sudo apt install libemail-send-perl libemail-mime-perl -y
```

Run the setup script again:

```
sudo ./checksetup.pl
```

#### **Step 7: Configure Apache**

Edit the Apache configuration file to point to Bugzilla:

```
sudo nano /etc/apache2/sites-available/bugzilla.conf
```

Add the following content:

```
<VirtualHost *:80>
```

```
ServerAdmin admin@example.com
DocumentRoot /var/www/html/bugzilla
ServerName bugzilla.example.com
<Directory /var/www/html/bugzilla>
    AddHandler cgi-script .cgi
    Options +ExecCGI
    DirectoryIndex index.cgi
    AllowOverride All
    Require all granted
</Directory>
</VirtualHost>
```

Enable the new site configuration:

```
sudo a2ensite bugzilla
sudo systemctl restart apache2
```

## Step 8: Access Bugzilla Web Interface

Open a browser and go to `http://your-server-ip/` to complete the setup.

### 1.5.3 Installing Bugzilla on Windows

Download and install **XAMPP** (Apache, MySQL, PHP, Perl) to set up a local development environment.

Download Bugzilla from the official site and extract it into the htdocs folder of XAMPP.

Install Perl and necessary Perl modules using **ActivePerl**.

Configure Apache and MySQL for Bugzilla by editing their respective configuration files.

Start Apache and MySQL services, then access `http://localhost/bugzilla/` in a browser to finalize the setup.



## Chapter 2. TEST CASES

### 1. Selenium IDE:

#### 1.1 What is Selenium IDE?

Selenium IDE (Integrated Development Environment) is a **browser extension** designed for recording, editing, and running automated test cases for web applications. It is one of the simplest tools in the **Selenium suite**, primarily used for test automation without requiring advanced programming skills.

#### 1.2 Key Features of Selenium IDE

**Record and Playback:** Allows users to **record** interactions with a website and **replay** them as automated tests.

**Test Script Editing:** Supports modifications to recorded scripts, including adding conditions, loops, and breakpoints.

**Assertions and Verifications:** Provides commands to verify page elements, text, and UI behaviors.

**Exporting Test Cases:** Allows test cases to be exported in programming languages such as **Java, Python, C#, and JavaScript**.

**Parallel Execution:** Supports running multiple test cases at once for efficient testing.

**Support for WebDriver:** Enables running scripts in different browsers beyond the IDE environment.

#### 1.3 How Selenium IDE Works

**Install the extension** in Chrome or Firefox.

**Record a test case** by interacting with the web application.

**Modify the script** by adding commands, conditions, or loops.

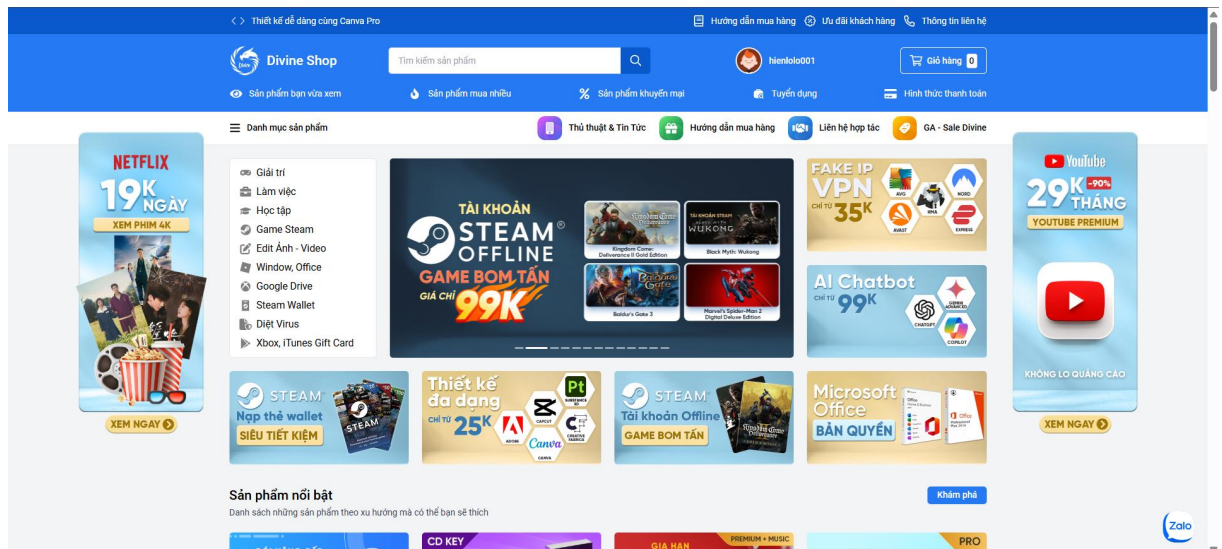
**Run and debug** the test case within the IDE.

**Export the test case** for execution in a Selenium WebDriver framework if needed.

### 2. Application Under Test Introduction

- Website: <https://divineshop.vn/>

- Home page:



DivineShop is an e-commerce platform specializing in the sale of digital products and online services. The website provides a convenient, fast, and automated purchasing experience for users who are looking for digital goods such as:

- Game gift cards (Steam Wallet, Google Play, App Store, PlayStation, Xbox, etc.)
- Software license keys (Microsoft Office, Windows, Adobe, etc.)
- Subscription services (Netflix, Spotify, YouTube Premium, VPNs)
- In-game items and top-up services

The main function of DivineShop is to connect users with reliable and instant digital product purchases. It allows users to search, select, and purchase various types of digital goods through an automated system that ensures instant delivery of codes or accounts right after successful payment.

In addition, DivineShop also provides:

- Membership system with discounts and promotions
- Multiple payment methods (E-wallets, bank transfers, etc.)
- Order management and automatic invoice issuance 24/7 customer support via live chat and ticket system

With a user-friendly interface and instant delivery mechanism, DivineShop aims to become a trusted destination for gamers and users who need digital services quickly and securely.

### 3. Summary of test cases

TC ID	TC Description	Author	Note
TC-01	Test the register function	Member 1	0.1
TC-02	Count the number of product in cart	Member 1	0.15
TC-03	Confirm that there is no product in cart	Member 1	0.15
TC-04	Test the function of calculate the final price	Member 1	0.15
TC-05	Test the search function	Member 2	0.15
TC-06	The price outside the feature page must match the price in the detail page.	Member 2	0.15
TC-07	Confirm that the product is out of stock, notify when available	Member 2	0.1
TC-08	Confirm that no products match with search	Member 1	0.1
TC-09	Confirm that find exactly with the search key	Member 2	0.15
TC-10	Count the number of the products that discounted	Member 1	0.15
TC-11	Test sort the products below 20000	Member 1	0.15
TC-12	Test when recover from sort	Member 2	0.1
TC-13	Add to wishlist and confirm wishlist has been added	Member 1	0.1
TC-14	Confirm that those are products you have watched	Member 2	0.1
TC-15	Check if discount code works or not	Member 1	0.1
TC-16	Register to get announce if the product get discount	Member 2	0.1
TC-17	Confirm that you successfully change your infomation	Member 2	0.1
TC-18	Update your friend email to give present	Member 1	0.1
TC-19	Remove your friend's email from giving slot	Member 2	0.1
TC-20	Confirm that product sort from low to high	Member 2	0.1
TC-21	Confirm that the product only have one picture	Member 2	0.15
TC-22	Confirm that the user will have an anounce when the product in stock again	Member 2	0.1
TC-23	Use the referral code to have some discount	Member 2	0.1
TC-24	This show the best selling products of the website	Member 1	0.1

TC-25	Its show the newest products	Member 1	0.1
TC-26	Add your new secondary shipping address	Member 1	0.1
TC-27	Delete your secondary shipping address	Member 2	0.1
TC-28	Confirm that transaction fail when something went wrong	Member 1	0.1
TC-29	Log out from the website	Member 2	0.1
TC-30	Log in the website	Member 1	0.1

#### 4. Details of test cases

TC ID	Steps	Expected Result	Test Result
TC-01	Test the register function 1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Click the register button on the nav bar 3. Enter the full name 4. Enter the email 5. Enter the username 6. Enter and re-enter the password 7. Tick on the accept term of service button 8. Click on create an account button 9. Check the correct email and username in the account detail page	The username and the email match with the user input when create an account	Pass
TC-02	Check for the amount of product that add to the cart 1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter the product name in the search bar 3. Click the search button 4. Add in to cart	Count the number of product in cart	Pass
TC-03	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Delete all product in the cart(if exist)	Confirm that there is no product in cart	Pass
TC-04	Test the function of calculate the final price 1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Search a product 3. Select the product 4. Add product in to cart 5. Change the quantity of the product in the cart 6. Check if the final price is correct	The final price must be correct with the amount of product in the cart.	Pass
TC-05	Test the search function 1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter the product name in the search bar 3. Click the search button 4. Check the name name of all the product on the feature page	Product name should match or almost the same with the user input in the search bar.	Pass
TC-06	Check for the match between the price of the product in the feature page and the detail page 1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Serach the product name 3. Select the product 4. Check for the price in the feature page and inside the product detail page	The price outside the feature page must match the price in the detail page.	Pass

TC-07	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter the product name in the search bar 3. Click the search button 4. Product is out of stock	Confirm that the product is out of stock, notify when available	Pass
TC-08	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter the product name in the search bar 3. Click the search button 4. No products match your search!	Confirm that no products match with search	Pass
TC-09	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter “Steam Wallet Code 400 HKD” in the search bar 3. Click the search button 4. Find exactly product name	Confirm that find exactly with the search key	Pass
TC-10	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter the discount product 3. Check the discounted products 4. Count the discounted products	Count the number of the products that discounted	Pass
TC-11	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Slice down and press 20000 button 3. Check the products below 20000	Sort the products below 20000	Pass
TC-12	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Press search button 3. Choose ‘Adobe’ category, ‘acc’ tag and ‘Mới cập nhật’ sort 4. Choose ‘Khôi Phục Bộ Lọc’	Recover from sort	Pass
TC-13	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter ‘Black Myth Wukong’ and search 3. Choose ‘Black Myth: Wukong - Tài khoản Steam Mới’ and hit wishlist button	Add to wishlist and confirm wishlist has been added	Pass
TC-14	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Choose some product and watch 3. Then hit the ‘Sản phẩm bạn đã xem’ button	Confirm that those are products you have watched	Pass
TC-15	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter the cart 3. Press the ‘Bạn có mã ưu đãi?’ button 4. Enter your code to get discount	Check if discount code works or not	Pass
TC-16	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Choose Steam Wallet Code 100 TWD product 3. Press the little bell next to wishlist button	Register to get announce if the product get discount	Pass
TC-17	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter account management	Confirm that you successfully change	Pass

	3. Go to account and change your information	your information	
TC-18	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter the cart 3. Press the ‘Bạn muốn tặng cho bạn bè?’ button 4. Enter your friend email	Update your friend email to give present	Pass
TC-19	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter the cart 3. Press the ‘Bạn muốn tặng cho bạn bè?’ button 4. Delete your friend email	Remove your friend’s email from giving slot	Pass
TC-20	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Press search button 3. Sort the product from low to high	Confirm that product sort from low to high	Pass
TC-21	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Enter “Steam Wallet Code 400 HKD” on the search bar 3. Press the product and press “Xem ảnh”	Confirm that the product only have one picture	Pass
TC-22	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Scroll down and find one product that out of stock 3. Enter the product and press “ Thông báo khi có hàng”	Confirm that the user will have an announce when the product in stock again	Pass
TC-23	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Press the cart button 3. Press “Bạn có mã giới thiệu?” and enter “divine2025” 4. Then press “Áp dụng”	Use the referral code to have some discount	Pass
TC-24	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Scroll down the website to see the contents 3. Press “Sản phẩm bán chạy nhất”	This show the best selling products of the website	Pass
TC-25	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Scroll down the website to see the contents 3. Press “Sản phẩm mới”	Its show the newest products	Pass
TC-26	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Go to “Quản lý tài khoản” and scroll down 3. Press “Quản lý địa chỉ mua hàng” 4. Press “Thêm địa chỉ” and enter your secondary address with personal information	Add your new secondary shipping address	Pass
TC-27	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Go to “Quản lý tài khoản” and scroll down	Delete your secondary shipping	Pass

	3. Press “Quản lý địa chỉ mua hàng” 4. Press “Xóa” to delete your secondary address	address	
TC-28	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Press the” + “ button to top up for the account 3. Choose Momo Payment and enter the money atleast 10000 4. Press “Nạp Dcoin” 5. Turn off the payment	Confirm that transaction fail when something went wrong	Pass
TC-29	1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Press “Đăng xuất” in the user icon 3. Successfully log out	Log out from the website	Pass
TC-30	Test the login function 1. Visit: <a href="https://divineshop.vn/">https://divineshop.vn/</a> 2. Click the login button on the nav bar 3. Enter the email or username 4. Enter the password 5. Click the login button 6. Check the correct email or username in the account detail page	The username or the email match with the user input when login in to the account.	Pass



### **Chapter 3. CONCLUSION**

In summary, this study highlights the critical role of Selenium IDE in automating the testing process for DivineShop, ensuring a seamless and efficient user experience. The research demonstrates how automation enhances platform reliability by identifying and resolving potential issues more efficiently than manual testing. Selenium IDE proves to be a valuable tool for improving the performance of DivineShop, optimizing testing efforts, and minimizing errors in the system.

By implementing Selenium IDE, DivineShop can significantly reduce testing time, enhance accuracy, and provide a better shopping experience for users. The findings indicate that automation not only streamlines quality assurance processes but also contributes to the long-term sustainability and competitiveness of the platform.

While this study focused on front-end testing using Selenium IDE, future research can explore the integration of advanced Selenium WebDriver functionalities and back-end testing methods. Additionally, further studies may analyze the impact of automation on customer satisfaction and business growth. By continuously improving its testing strategies, DivineShop can maintain its reputation as a reliable and user-friendly digital marketplace.

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